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HUMAN-WILDLIFE CONFLICT & COEXISTENCE
/ CASE STUDIES

FOSTERING COEXISTENCE THROUGH A POVERTY REDUCTION APPROACH

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INTRODUCTION

The Tarija region of southern Bolivia encompasses four ecosystems, including the critically endangered Inter-Andean dry forests. Much of the forest composition has changed as a result of intensive human intervention. Despite the severe fragmentation and habitat loss, the valleys are considered important centres for plant endemism, and it is home to the largest carnivores of South America, Andean bear *Tremarctos ornatus*, jaguar *Panthera onca* and puma *Puma concolor*. The area is prone to the effects of climate change with severe droughts affecting agriculture, with up to 80 percent crop losses in 2015.

CONSEQUENTLY, PEOPLE WERE CHANGING THEIR MAIN ECONOMIC ACTIVITY FROM ARABLE AGRICULTURE TO LIVESTOCK.

KEY INSIGHTS & LESSONS LEARNT
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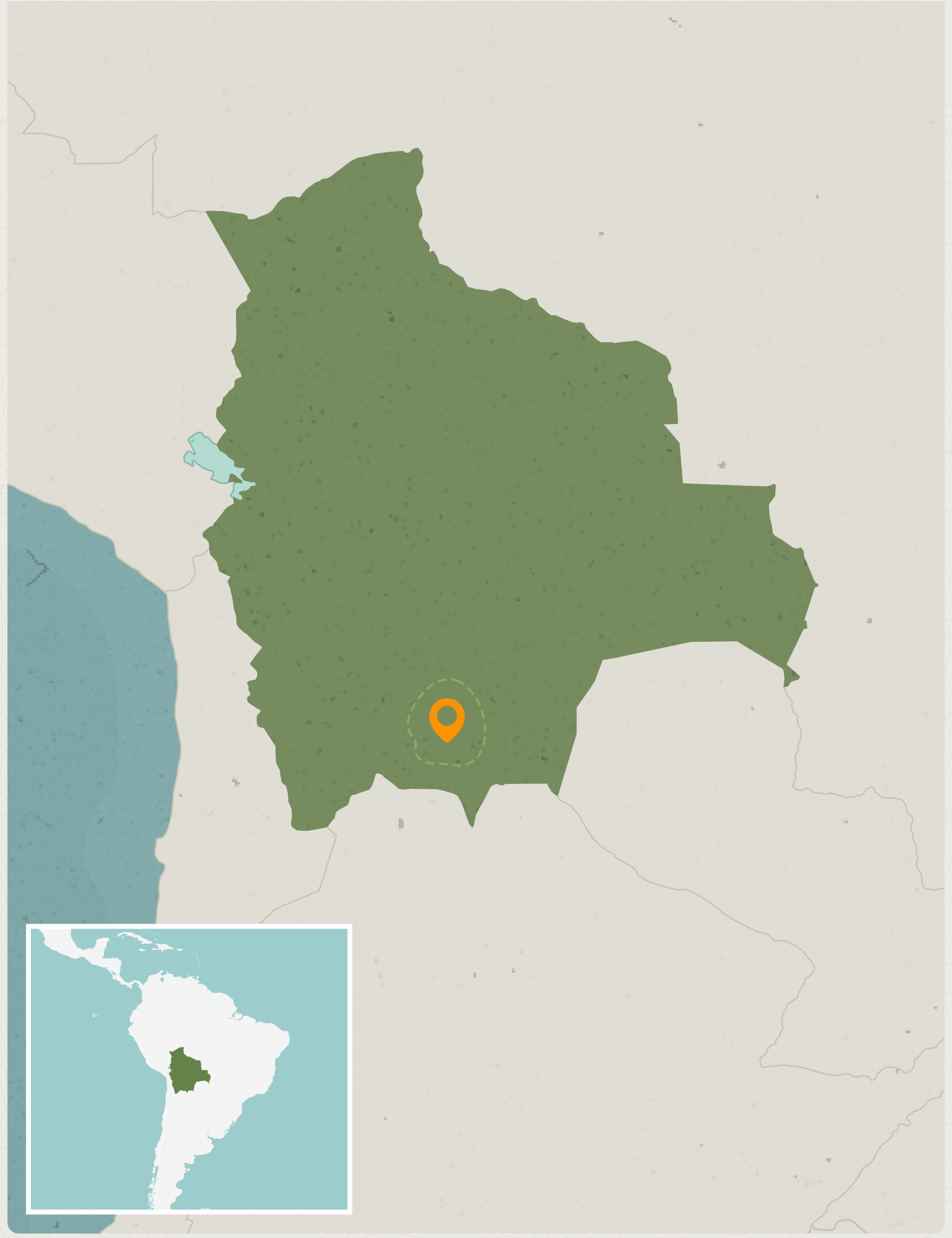
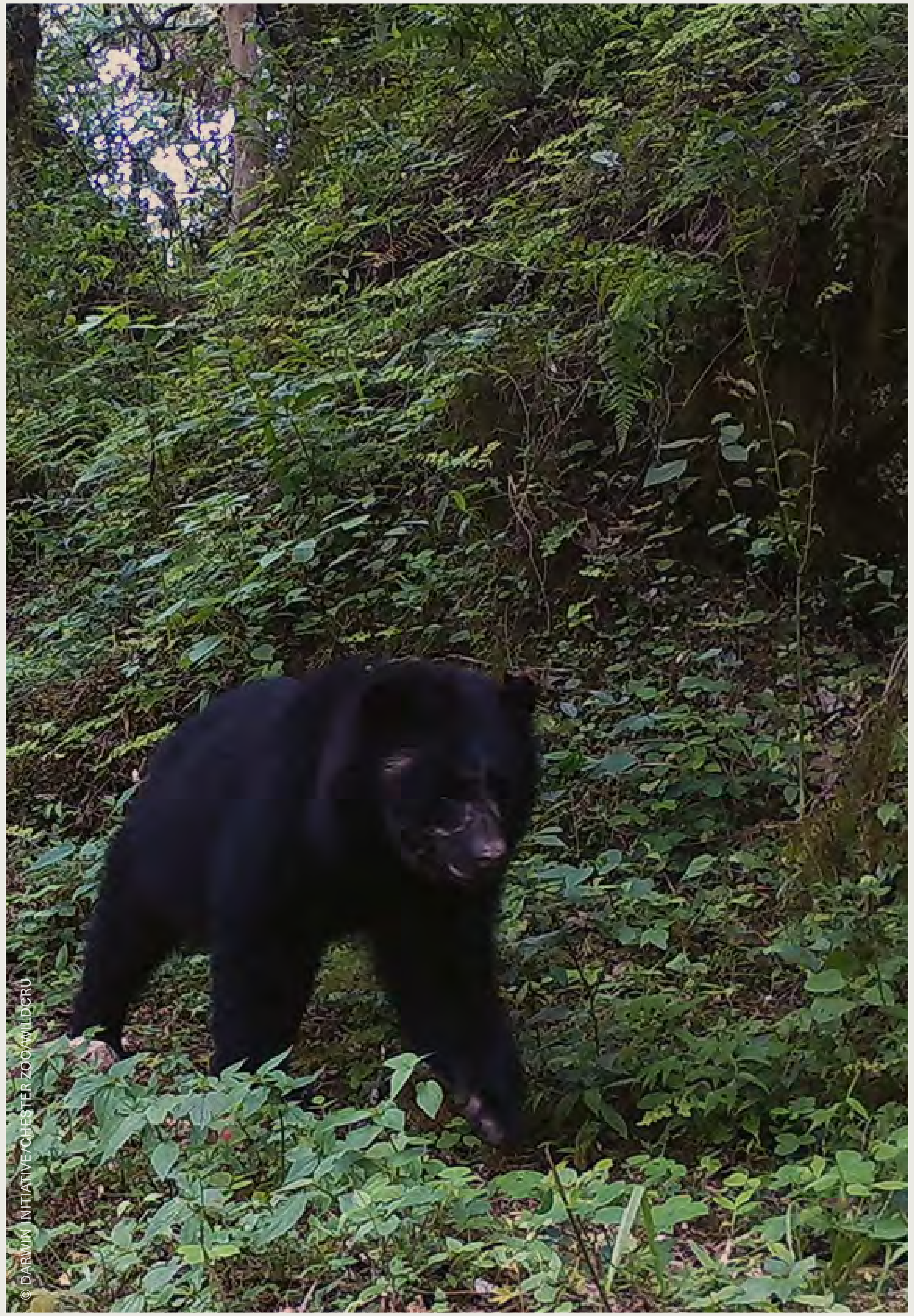
TARIJA
REGION

TARIJA REGION, BOLIVIA



Source: Free Vector Maps modified to comply with UN, 2020

Free Vector Maps 2022. World Map [online] [Cited 5 January 2022] https://freevectormaps.com/world-maps/WRLD-EPS-03-0001



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Following a regional assessment on the distribution of Andean bears in 2010, researchers received reports from local communities regarding Andean bears attacking and killing cattle in the Tarija region, with retaliation against the bears ensuing. Researchers were surprised by these reports as the presence of bears had not been documented in the area. However, in 2016, a camera trap study was initiated by Chester Zoo, Protección Medio Ambiente Tarija (PROMETA) and the Wildlife Conservation Research Unit (WildCRU) and confirmed the presence of a reproductive population of Andean bears (mother and cub) in the region. These findings became the trigger to start the Andean Bears and People Project in 2018, a collaboration between Chester Zoo, PROMETA, WildCRU, Centro de Estudios Regionales de Tarija (CERDET), Instituto de Investigación y Capacitacion Campesina (IICA) and the Natural History Museum Alcides d'Orbigny.

> **THE PROJECT AIMED TO IMPROVE THE WELLBEING OF COMMUNITIES AND THE POPULATION OF ANDEAN BEARS BY LINKING POVERTY REDUCTION AND BIODIVERSITY CONSERVATION.**

PROBLEM ANALYSIS

To understand the communities' attitudes towards bears in the Tarija region, a baseline questionnaire was conducted by the project using open and closed questions focused on tolerance, while the theory of planned behaviour was measured, and household and wellbeing questions were asked.

THE MAJORITY OF RESPONDENTS WERE FOUND TO HAVE NEGATIVE ATTITUDES, LOW TOLERANCE AND BAD PERCEPTIONS OF THE ANDEAN BEAR.

However, despite these negative attitudes towards bears, few people had seen a bear themselves. The questionnaires also highlighted that the communities suffered some of the highest levels of poverty in the region. The change from agriculture to livestock to adapt to the climatic changes not only impacted the Inter-Andean dry forests that the cattle grazed in, a critically endangered ecosystem within the dry forest biome but led to increased encounters between people, bears and livestock.

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PROCESS

Although the communities had negative attitudes towards Andean bears, empirical evidence of impacts in the form of livestock attacks was limited and appeared to be a rare occurrence. The project felt that addressing the pressing poverty levels in the region would be beneficial and looked to economic alternatives to livestock. During this planning phase, a leader from the community of Pajonalcito asked if the project had experience in beekeeping as the community was interested in trying this approach. PROMETA, the non-governmental organisation conducting the work in-country, had worked with beekeepers for a long time in other regions.

BY IDENTIFYING SHARED GOALS, THE COMMUNITY AND PROMETA AGREED TO WORK TOGETHER TO ESTABLISH A PILOT PROJECT.

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It was explained that there was no funding to conduct this work initially. After negotiation with the community, it was decided that if the community provided 30 percent of the budget required, the project would find ways to access the remaining funds. Following this partnership, six communities heard about the activity and requested to be involved. San Isidro, Hoyadas -Mendez, Pajonalcito, San Lorencito, Romerillo and Hoyadas-Cercado are the six additional communities.

The project also wanted to understand the interactions between bears and humans further.

LEADERS WERE ASKED TO IDENTIFY COMMUNITY MEMBERS INTERESTED IN BEING TRAINED IN BEAR MONITORING IN EACH COMMUNITY.

These community members were named *"parabiologists"* and were trained in camera trapping and bear monitoring, an approach successfully used elsewhere in Bolivia. The parabiologists received formal training for conducting fieldwork and communicated with the other parabiologists in various communities about their work. The parabiologists attended livestock depredation incidences to verify attacks caused by bears. The acknowledgement as parabiologists provided these community members with credit for the knowledge they held.

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ACTIVITIES

Having received funding to collaborate with the communities interested in beekeeping, the project partnered with the six communities that contributed 30 percent of the budget to develop supplementary beekeeping activities.

> **ONE HUNDRED PARTICIPANTS FROM THE SIX COMMUNITIES WERE TRAINED TO CAPTURE WILD BEE COLONIES, BUILD HIVES AND ESTABLISH COMMUNITY APIARIES.**

Each community manages their apiary and determines the members' roles, such as checking the beehives, feeding the bees, and cleaning the apiary. In the project's second year (2019), the communities could already harvest and sell the honey produced. The community was given a choice for how they would like to spend the money generated. In the second year, they chose to redistribute the profits between the community. However, communities harvested 156 kg of honey in the project's third year. Following a group decision, some of the honey was distributed among the community, and the rest was sent for sale. The revenue from the sale was used to buy additional equipment in each community. Despite the COVID-19 pandemic, in 2020-2021, 509 kg of honey has been harvested already.

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The project guaranteed the sale of the honey to ensure communities receive an income. Since the community apiaries have been established, individuals within each community have seen the potential for beekeeping as an alternative livelihood. There are currently 92 private beehives across all six communities. In addition to supporting communities with honey production, training was provided in business management to three communities. The project aims to establish an Andean Bear Friendly brand so that consumers of honey and other products know that they are organic and good for their health. By purchasing the products, the consumers support communities to live alongside wildlife.

Although the project's main focus was developing economic alternatives, cattle predation by bears did still occur occasionally. When an Andean bear was reported to have predated on a cow, parabiologists would attend to the incident to confirm that a bear was responsible. Once verified, livestock owners were provided with fireworks that were set off every morning for the next few days following the incident.

> **THE NOISE OF THE FIREWORK SCARED THE BEARS AWAY FROM THE AREA AND ENSURED THAT THEY KNEW THE PLACE WAS DANGEROUS.**

As fireworks were relatively inexpensive, this was found to be a successful way to deter bears from the site after a predation event or if evidence of bears were found.

OUTCOMES

Despite holding several workshops with a seventh community, the community decided not to participate further with community apiaries. They were primarily involved in tomato production, which required more significant time commitments and the use of chemicals for the tomato production would have impacted beekeeping. While this was frustrating considering the investment in workshops, people can change their minds, which should be expected.

COMMUNITY APIARIES WERE SUCCESSFULLY ESTABLISHED IN SIX COMMUNITIES, INCREASING INCOME IN THESE COMMUNITIES THROUGH THE SALE OF HONEY AND HELPING COMMUNITY MEMBERS TO BECOME LESS RELIANT ON CATTLE.

VALLE DE OSOS

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Despite livestock losses occurring during the project, no Andean bears were killed in the communities where the project was active from 2016 to 2021. When implemented, fireworks appeared to deter bears from areas where cattle were present. A significant change in their tolerance and attitudes towards bears was observed through discussions with ranchers who had previously killed bears and pumas.

KEY INSIGHTS & LESSONS LEARNT

01 TRANSPARENCY

When engaging with the communities initially, the project was transparent and honest regarding the expectations for the work. It focused on identifying shared goals with the communities and working collaboratively on how to achieve them, ensuring that expectations were not raised above reality.

02 COMMUNICATION

The lead researcher chose the communities to engage in for many reasons, but in particular because they could communicate directly with the community members as they spoke the same language. In other areas of the Andean bear distribution, this would not have been possible. This meant the researcher could respond directly to community members and ensure a complete understanding of any questions posed during discussions.

03 STAKEHOLDER INVESTMENT

By agreeing that the communities needed to contribute 30 percent of the cost of the equipment to set up the community apiaries, the communities were invested in the project, which ensured complete and ongoing engagement with the project.

04 COMMUNITY INVOLVEMENT

By involving members of the communities in bear monitoring, community members received insights into the lives of the wildlife in the area. It's believed this helped change the attitudes towards the wildlife as they could understand the importance of the wildlife directly. By distributing camera traps between communities, healthy competition was established between communities regarding which wildlife species were present. By employing the parabiologists from local communities, work was not disrupted during the COVID-19 pandemic as they could continue the work of monitoring bears in each community and engage with community members when negative interactions occurred.

FURTHER INFORMATION

- Technical Manual: First Training Course for the Training of Parabiologists (in Spanish). Whitley Fund for Nature. 2008
- The IUCN Red List Assessment: Spectacled Bear Tremarctos ornatus. 2017
- Landscape assessment of habitat suitability and connectivity for Andean bears in the Bolivian Tropical Andes. Ursus. 2014.

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ABOUT THE CASE STUDIES

The **Food and Agriculture Organisation** (FAO) of the United Nations and the **IUCN SSC Human-Wildlife Conflict & Coexistence Specialist Group** (HWCCSG) have jointly developed a set of case studies with the aim of covering the process projects have taken to manage various aspects of a human-wildlife conflict & coexistence situation. This case study is one of many that will be used to illustrate key components of the **IUCN SSC Guidelines on Human-Wildlife Conflict & Coexistence**. The published case studies can be found in the **Human-Wildlife Conflict & Coexistence Library**.

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